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MEMORANDUM

To: Members of the Subcommittee on National Security, Emerging Threats, and International Relations

From: Christopher Shays
Chairman

Date: March 30, 2006

Subject: Briefing memo for the April 4, 2006 Subcommittee hearing

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Attached find the briefing memo required by Committee rules for the hearing on Tuesday April 4th entitled, *Nuclear Security: Has the NRC Strengthened Facility Standards Since 9/11?* The hearing will convene at 2:00 a.m., room 2247 Rayburn House Office Building.

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MEMORANDUM

To: Members of the Subcommittee on National Security, Emerging Threats, and International Relations

From: Vincent Chase, Chief Investigator

Date: March 30, 2006

Subject: Briefing memorandum for the hearing entitled, *Nuclear Security: Has the NRC Strengthened Facility Standards Since 9/11?* scheduled for Tuesday, April 4th at 2:00 p.m., room 2247 Rayburn House Office Building.

PURPOSE OF HEARING

The purpose of the hearing is to examine Nuclear Regulatory Commission (NRC) efforts to set Design Basis Threat (DBT) security standards for nuclear power facilities.

HEARING ISSUES

1. How adequate is the Nuclear Regulatory Commission process to develop and monitor the implementation of the 2003 NRC DBT?

2. How effectively is the nuclear power industry implementing the 2003 NRC DBT?

BACKGROUND

The Nuclear Regulatory Commission (NRC), an independent federal regulatory agency, is responsible for licensing and regulating nuclear power facilities and materials. The Atomic Energy Act of 1954[1] and the Energy Reorganization Act of 1974[2] gave the NRC the responsibility for ensuring the safe and peaceful uses of nuclear energy. **(Web Resource 1)**

Five Commissioners[3] appointed by the President and confirmed by the Senate for five-year terms manage the NRC. One of the Commissioners is designated by the President to be the Chairman and official spokesperson of the Commission.

The Commission as a whole formulates policies and regulations governing nuclear reactor and materials safety, issues orders to licensees, and adjudicates legal matters brought before it. The NRC implements Commission programs through four regional offices. The United States has 103 commercial nuclear reactors at 65 nuclear plant sites in 31 states. **(Attachment 1)**

Security for commercial nuclear power plants is primarily the responsibility of the Commission's Office of Nuclear Security and Incident Response. **(Web Resource 2) (Attachment 2)** This office develops overall agency policy and provides management direction for evaluating and assessing technical issues involving security at nuclear facilities and directs the NRC program for response to incidents. In addition, the Office develops emergency preparedness policies and guidelines for licensed nuclear facilities and is the emergency preparedness and incident response interface with the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) and other Federal agencies.

Commercial nuclear power plants are also subject to federal and state laws that control certain matters related to security functions, such as the

[1] 42 U.S.C. 2011 (Public Act 83-703)

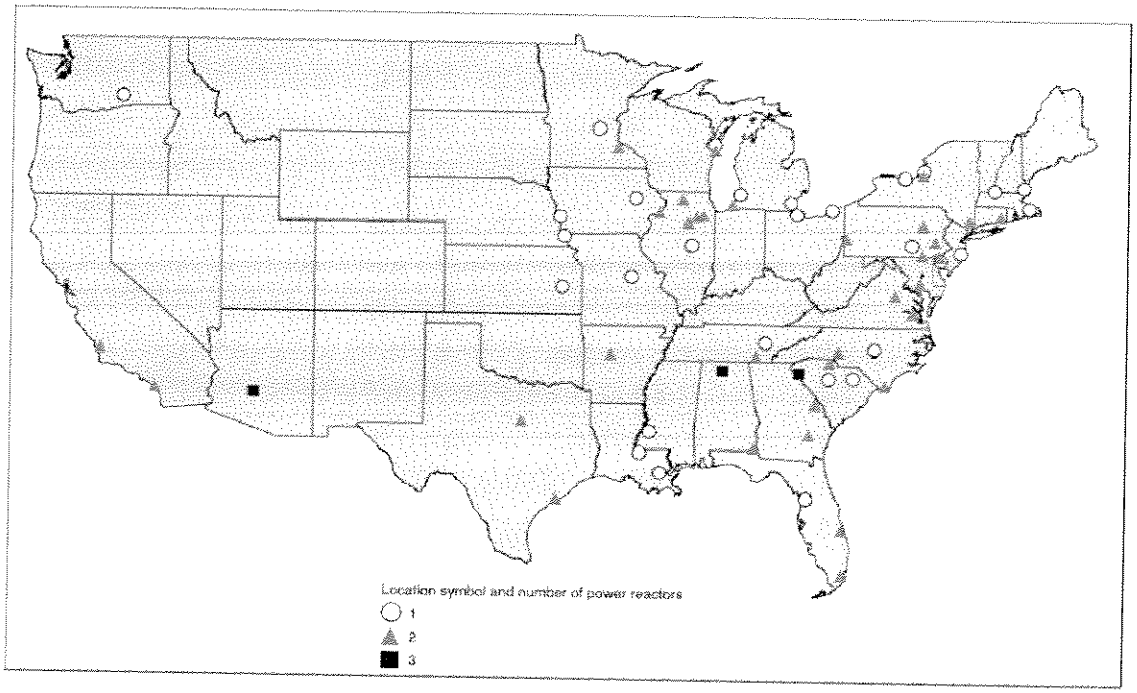
[2] 42 U.S.C. 5801 (Public Act 93-438)

[3] Nuclear Regulatory Commissioners: Commissioner Nils Diaz, Chairman; Commissioner Gregory B. Jaczko; Commissioner Peter B. Lyons; Commissioner Edward McGaffigan, Jr.; Commissioner Mr. Jeffrey S. Merrifield.

possession and use of automatic weapons by security guards and the use of deadly force. In August 2005, Congress passed HR 6 (P.L. 109-58) which gave the NRC authorization, not withstanding any state or local prohibitions, to allow plant licensees and/or their security contractors to carry various kinds of firearms including semiautomatic assault weapons. P.L. 109-58 requires security officers carrying such weapons to be properly trained and to pass a background check to determine whether the individual is prohibited from possessing or receiving a firearm under federal or state law, or regulation. **(Attachment 3)**

The following map shows the location of commercial nuclear power plants operating in the United States.

Figure 1: Commercial Nuclear Power Plants in the United States



Nuclear Regulatory Commission responsibilities include regulating nuclear power plant licensees' accounting systems for nuclear materials, and security programs and contingency plans for dealing with threats, thefts, and sabotage relating to nuclear material, high-level radioactive wastes, nuclear facilities, and other radioactive materials and activities. Programs that promote the common defense and security and protect public health and safety by guarding against theft and sabotage are generally referred to as safeguards and security.

Primary responsibility for nuclear safety and regulatory compliance lies with nuclear utilities. The utilities are required to identify security problems and report them to the NRC. Nuclear facilities are required to protect against a specified level of threat (known as the Design Basis Threat or DBT) from outside attackers and inside conspirators using extensive security measures. **(Attachment 4)**

Nuclear Regulatory Commission regulations require nuclear power plants to take adequate measures to protect the public from the possibility of exposure to radioactive release caused by acts of sabotage. These measures include:

- the physical construction of the containment building for the reactor,
- security personnel, procedures, and surveillance equipment, and
- security clearance background checks and daily monitoring for plant employees. **(Web Resource 3)**

Prior to the September 11 attacks, all commercial nuclear power plants licensed by NRC had to be protected by a series of physical barriers and a trained security force. The plant sites are divided into three zones: an "owner controlled" buffer region, a "protected area," and a "vital area." Access to the protected area is restricted to plant employees and monitored visitors, with stringent access barriers. The vital area is further restricted, with additional barriers and access requirements.[4]

In February 2002, the NRC issued an order requiring utilities to make improvements in nuclear power plant security in response to the September 11, 2001 terrorist attacks. **(Attachment 5)** These improvements included increases in the guard force, requirements that guards carry their primary weapons while on patrol, extending and fortifying security perimeters (the movement of truck bomb barriers farther from reactor targets), installing additional high-tech surveillance equipment, and strengthening coordination of security efforts with local, state and federal agencies. **(Attachment 6)**

Design Basis Threat (DBT)

[4] General NRC requirements for nuclear power plant security can be found at 10 CFR 73.55.

On April 29, 2003 the NRC issued orders to all licensed nuclear power plants to meet the new security threat. Details of the capabilities against which plants should be prepared are specified in the classified design basis threat (DBT). The regulatory orders changed the DBT to "represent the largest reasonable threat against which a regulated private guard force should be expected to defend under existing law."**(Attachment 7)** The following chart summarizes key changes to the NRC DBT:

Adversary characteristic	NRC staff's recommended DBT	April 2003 revised DBT, as approved by NRC Commissioners
Number of attackers	The staff recommended increasing the number of attackers to fall within the range of most known terrorist cells worldwide.	The Commission supported the number of attackers recommended by the NRC staff.
Vehicle bomb	The staff recommended increasing the maximum size of a vehicle bomb based on an analysis of previous attacks using vehicle bombs. The staff considered a larger vehicle bomb size but decided against the larger size after obtaining comments from stakeholders, including the nuclear industry.	The Commission supported the staff recommendation.
Weapons	The staff refined and expanded the list of weapons that could be used in an attack. The staff decided against recommending certain weapons after obtaining comments from stakeholders, including the nuclear industry.	The Commission retained most weapons recommended by the staff but removed certain weapons the staff had recommended.
Inside assistance	Active or passive.	Active or passive. The Commission added a provision that the likelihood of an active insider can be reduced by a human reliability program, which consists of policies and procedures, such as substance abuse testing, designed to help ensure the reliability of personnel.
Weight of equipment and explosives	Based on the degree to which attackers would rely on speed of movement rather than be encumbered by large amounts of equipment.	The Commission reduced the weight recommended by the staff.

Source: GAO analysis of NRC information.

In August 2005, Congress passed HR 6 (P.L. 109-58) which requires the NRC to initiate a rulemaking procedure to revise the 2003 DBT not later than May 2007. The NRC is required to consider the potential for attack on facilities by multiple coordinated teams of a large number of individuals, the potential for water-based and air-based attacks, and the potential use of explosive devises of considerable size and other modern weaponry among others. **(Attachment 3)** On November 18, 2005, the NRC published for public comment proposed revisions to the DBT. **(Web Resource 5)**

The NEI and the NRC have not calculated the cost of fully implementing the revised 2003 DBT security enhancements. However, according to the NEI, the nuclear power industry spent approximately $1.02 billion on security enhancements from September 11 through June 2004. **(Attachment 4)**

Force-on-Force Exercises

The NRC requires each nuclear plant to conduct periodic security exercises every three years to test its ability to defend against the capabilities directed in the DBT. In these "force-on-force" exercises, monitored by the NRC, an adversary force from outside the plant attempts to penetrate the vital area and damage or destroy key safety components. Participants in the tightly controlled exercises carry weapons modified to fire only blanks and laser bursts to simulate bullets, and they wear laser sensors to indicate hits. Other weapons and explosives, as well as destruction or breaching of physical security barriers, may also be simulated. While one squad of the guard force is participating in a force-on-force exercise, another squad is also on duty to maintain normal plant security. Plant defenders know that a mock attack will take place some time during a specific period of several hours, but they do not know the attack scenario. Multiple attack scenarios are conducted over several days of exercises.[5] **(Attachment 8, p. 2)**

In March 2004, the Subcommittee asked GAO to examine the process NRC used to develop the April 2003 DBT for nuclear power plants, to determine what actions nuclear power plants have taken to enhance security in response to the 2003 NRC DBT and to review NRC progress to strengthen force-on-force inspections. During the April 4 hearing, GAO will release a report entitled, *Nuclear Power Plants: Efforts Made to Upgrade Security, but*

[5] Subcommittee staff observed a force-on-force exercise at the Millstone Nuclear Power Plant in New London, CT on March 15, 2005.

the Nuclear Regulatory Commission's Design Basis Threat Process Should be Improved. **(Attachment 9)**

DISCUSSION OF HEARING ISSUES

1. How adequate is the Nuclear Regulatory Commission process to develop and monitor the implementation of the 2003 NRC DBT?

According to GAO, the process that NRC used to revise the DBT for nuclear power plants was generally logical and well defined. The process included an analysis of intelligence and law enforcement information on terrorist capabilities and consultation with the Department of Energy (DOE), which has a DBT for facilities containing special nuclear material. The NRC threat assessment staff used a comprehensive screening tool to analyze the intelligence information and evaluate particular terrorist capabilities for development of DBT recommendations to the NRC Commissioners. **(Attachment 8, p. 5-6)**

Using this process, NRC produced a revised DBT that largely corresponded to the original recommendations of the NRC threat assessment staff. But, according to GAO, certain elements of the revised DBT, such as inside assistance, and the weapons and vehicle bombs attackers could use against a plant, do not correspond to the original staff recommendations. **(Attachment 8, p. 12)**

GAO believes there are two reasons for this difference. First, the NRC threat assessment staff charged with reviewing intelligence information made changes to its recommendations after receiving feedback from stakeholders, including the nuclear industry. NRC specifically sought and received feedback from the nuclear industry on what is reasonable for a private security force to defend against including the cost and time frame for implementing security measures to defend against specific adversary characteristics. The GAO concern is that during the same period that the threat assessment staff was receiving industry and other stakeholder feedback, the staff continued to analyze intelligence information and modify the draft DBT. The chief of NRC's threat assessment staff told GAO that NRC did not make changes to the draft DBT solely on industry views. Rather, the changes were made based on multiple internal analyses and discussions among the threat assessment staff and higher levels of review within NRC.

Nevertheless, in GAO's view the process NRC used to obtain feedback from stakeholders and the nuclear power industry created and opportunity for, and the appearance of, industry influence on the threat assessment regarding the characteristics of an attack. **(Attachment 8, p. 20-21)**

Responding the GAO's concern, the NRC wrote that the agency made a deliberate decision to develop the revised DBT while simultaneously (rather than sequentially) seeking input from stakeholders to speed up the process in the aftermath the September 11, 2001, terrorist attacks. However, whether NRC chooses to use a simultaneous or sequential process, GAO continues to believe the best approach would be to insulate the threat assessment staff from interactions with the nuclear industry by assigning responsibility for such interactions to a different office in NRC. This would separate the fact-based analysis of the threat to nuclear power plants from policy-level judgments regarding what is reasonable for a private security force to defend against. **(Attachment 8, p. 44)**

Second, the NRC Commissioners made changes to the staff recommendations on the basis of what is reasonable for a private security force to defend against but did not identify explicit criteria for such policy judgments. The Commissioners took the position that civilian security forces cannot reasonably be expected to defend against all threats, and that the defense against certain threats (such as an airborne attack) is the primary responsibility of the federal government. According to GAO, consideration of issues such as what is reasonable for a private security force to defend against can certainly be considered by the Commissioners in approving changes to the DBT. However, the Commissioners did not identify explicit criteria for the factors to be used to determine appropriate security force levels, such as the cost of defending against particular adversary characteristics. **(Attachment 8, p. 23)**

The NRC stated their authority does not require, and could be unduly restricted by proving, detailed prescriptive criteria to justify changes rejecting or modifying DBT characteristics. The NRC has taken the position that the basis for Commission policy decisions and direction to the NRC staff with regard to the DBT are sufficiently articulated in the Commission's voting record and requirements memorandum. However, GAO still believes there is a problem with this process and remains concerned that the basis for how the

Commissioners made decisions to exclude certain characteristics from the DBT is not as transparent as it could be.

GAO did not find explicit criteria for what adversary characteristics would not be reasonable for a private security force to defend against. As an example, the memorandum accompanying the Commission's April 2003 decision approving changes to the DBT did not provide the reason for the decision to remove two weapons the NRC threat assessment staff has recommended for inclusion. Rather, the voting record showed that individual Commissioners used differing criteria and emphasized different factors, such as cost, or the practicality of defensive measures. GAO has recommended that NRC develop general criteria and definitions to guide Commission decisions to provide greater transparency for Commission decisions. **(Attachment 8. p. 45)**

2. How effectively is the nuclear power industry implementing the 2003 NRC DBT?

Nuclear power plants have made substantial security changes in response to the September 11, 2001 attacks and the 2003 revisions to the DBT. GAO found at the sites visited that plant licensees implemented new protective strategies, added security barriers, detection equipment, enhanced access control, and hired additional security officers. However, despite these efforts, GAO concluded it is too early to determine whether sites are capable of defending against the 2003 DBT because as of November 1, 2005 only 20[6] of the 65 sites had conducted force-on-force inspections. Force-on-force inspections are designed to determine the effectiveness of the sites security procedures and develop correction plans for any weaknesses uncovered.

GAO observed during force-on-force exercise scenarios that the adversary attackers used many of the characteristics of the 2003 DBT including a vehicle bomb, a passive insider, and explosives. However, GAO brought to the attention of the NRC issues that warranted attention. These included:

1. Problems with use and reliability of laser equipment. Laser equipment is used to simulate live fire. **(Attachment 8, p. 38)**

[6] As of March 30, 2006 twenty-seven force-on-force exercises have been conducted.

2. Force-on-force schedules may create artificial successful test results. Specifically, exercises are generally held in the day and evening shortly after exercise "window" (the agreed upon time for the exercise to begin). Consequently, site security forces might be able to anticipate the approximate time the attack would begin, and industry observers from other sites might have more information then necessary to inspections at their own sites to better test how sites would respond to an actual terrorist attack. **(Attachment 8, p. 38)**

3. Force-on-force exercise would be more valuable if NRC allowed the adversaries to test the full extent of a sites' external and internal security strategy. Specifically, exercises end when a security force successfully stops an attack. The nuclear energy industry has recommended the adversaries be allowed to challenge each layer of defense until reaching their targets, or being defeated at the last possible point of defense. **(Attachment 8, p. 39)**

4. GAO observed the protection of the mock attack scenarios could be improved. During a safety "walk down" scenario planner made motions that may have alerted security officers to the targets the adversaries would try to reach during the evening exercise. In addition, because of the large number of people who have access to scenario information, there is an increased chance that the scenario might be compromised. **(Attachment 8, p. 39)**

5. GAO observed the feedback to plant licensees was inconsistent. As an example, NRC failed to discuss with the plant licensee several potential problems raised by the NRC team after each scenario. According to GAO, the NRC took measures to improve the quality of feedback to plant licensees. **(Attachment 8, p. 40)**

6. According to GAO, the NRC is on schedule to conduct the first-round of force-on-force inspections at all sites with three

years. As of November 1, 2005, NRC had conducted 20[7] or about 31 percent of the 65 nuclear power plant sites. GAO is recommending the NRC devote the necessary resourced to ensure the force-on-force inspection schedule is met. **(Attachment 8, p.41)**

[7] As of March 30, 2006 twenty-seven force-on-force exercises have been conducted.

WITNESS TESTIMONY

PANEL ONE

Mr. Jim Wells, Director, Natural Resources and Environment, Government Accountability Office will testify about the GAO review of NRC efforts to upgrade security and force-on-force inspections at nuclear power plants. In addition GAO will testify about NRC DBT process improvements.

The Honorable Nils Diaz, Chairman, U.S. Nuclear Regulatory Commission will testify about NRC efforts to upgrade security and force-on-force inspections at nuclear power facilities. In addition, the Chairman will testify about the process used by the NRC to develop the 2003 DBT.

PANEL TWO

The Honorable Richard Blumenthal, Attorney General, State of Connecticut will testify about whether the 2003 NRC DBT is adequate to protect at nuclear power plants.

Danielle Brian, Executive Director, Project on Government Oversight will testify about whether the 2003 NRC DBT is adequate to protect at nuclear power plants.

Mr. Marvin Fertel, Vice President and Chief Nuclear Officer, Nuclear Energy Institute will testify about nuclear power industry efforts to implement the 2003 NRC DBT.

Mr. Chris Crane, President and Chief Nuclear Officer, Exelon Generation Co., LLC will testify about his efforts to improve security and the implementation the 2003 NRC DBT at Exelon Generation Co.

ATTACHMENTS

1. *U.S. Commercial Nuclear Power Plants that are Licensed to Operate*, Government Accountability Office, September 2003, Report No. GAO-03-752, pg. 30-32.

2. Nuclear Regulatory Commission (NRC)
Organization Chart

4. *Energy Policy Act of 2005*, Public Law 109-58, *Subtitle D-Nuclear Security*, August 8, 2005.

4. *Nuclear Power Plant Security, Key Facts*,
Nuclear Energy Institute (NEI), March 2005

5. NRC News, ***NRC ORDERS NUCLEAR POWER PLANTS TO ENHANCE SECURITY,*** Nuclear Regulatory Commission, February 26, 2002.

6. *Fact Sheet on Nuclear Security Enhancements Since September 11, 2001*, U.S. Nuclear Regulatory Commission.

7. NRC News, *NRC APPROVES CHANGES TO THE DESIGN BASIS THREAT AND ISSUES ORDERS FOR NUCLEAR POWER PLANTS TO FURTHER ENHANCE SECURITY,* Nuclear Regulatory Commission, April 29, 2003

8. CRS Report for Congress, *Nuclear Power Plants: Vulnerability to Terrorist Attack*, RS21131, Updated August 9, 2005.

9. *Nuclear Power Plants: Efforts Made to Upgrade Security, but the Nuclear Regulatory Commission's Design Basis Threat Process Should be Improved*, GAO-06-388, February 2006.

WEB RESOURCES

1. U.S. Nuclear Regulatory Commission (NRC)
http://www.nrc.gov/who-we-are.html
accessed March 24, 2006.

2. U.S. Nuclear Regulatory Commission (NRC)
< http://www.nrc.gov/what-we-do/safeguards/areas.html>
Accessed March 24, 2006

3. *Safety and Security: Plant Security: Physical Barriers, Armed Guards, Personnel Procedures, Nuclear Energy*
http://www.nei.org/index.asp?catnum=2&catid=274
accessed March 24, 2006.

4. Proposed Nuclear Security Regulations,
Physical Protection of Plants and Materials, 10CFR Part 73,
http://www.nrc.gov/reading-rm/doc-collections/cfr/part073/full-text.html#part073-0001
accessed March 29, 2006.

WITNESS LIST

PANEL ONE

Mr. Jim Wells, Director,
Natural Resources and Environment
Government Accountability Office

The Honorable Nils Diaz, Chairman
U.S. Nuclear Regulatory Commission

accompanied by

The Honorable Gregory B. Jaczko, Commissioner

The Honorable Edward McGaffigan, Jr. Commissioner

The Honorable Jeffrey S. Merrifield, Commissioner

PANEL TWO

The Honorable Richard Blumenthal
Attorney General
State of Connecticut

Danielle Brian, Executive Director
Project on Government Oversight

Mr. Marvin Fertel,
Vice President and Chief Nuclear Officer
Nuclear Energy Institute

Mr. Chris Crane
President and Chief Nuclear Officer
Exelon Generation Co., LLC